

CLAIMS

WHAT IS CLAIMED:

1. A system for chemical mechanical polishing, comprising:

a polishing pad; and

a pad conditioner being adapted to direct a fluid jet towards said polishing pad.

2. The system of claim 1, wherein said pad conditioner comprises:

a high pressure fluid supply; and

a nozzle being connected to said high pressure fluid supply to supply said fluid jet.

3. The system of claim 1, wherein said fluid jet has a substantially cylindrical shape or a substantially rectangular shape.

4. The system of claim 1, wherein a first diameter of said fluid jet is smaller than a second diameter of said fluid jet.

5. The system of claim 1, wherein said fluid jet comprises a liquid.

6. The system of claim 1, wherein said fluid jet comprises water.

7. The system of claim 1, wherein said fluid jet comprises a gas.

8. The system of claim 1, wherein said fluid jet comprises abrasive particles.

9. The system of claim 1, further comprising a jet moving unit being adapted to move said fluid jet.

10. The system of claim 9, wherein said jet moving unit is adapted to move said fluid jet in an oscillating motion.

11. The system of claim 10, wherein said jet moving unit is configured to provide said oscillating motion as a bi-directional circular motion.

12. The system of claim 10, wherein said jet moving unit is configured to provide said oscillating motion as a bi-directional linear motion.

13. The system of claim 9, wherein said jet moving unit is adapted to move said fluid jet in a plane substantially parallel to a surface of said polishing pad.

14. The system of claim 13, wherein a direction of said fluid jet is substantially orthogonal to said plane.

15. The system of claim 9, wherein said jet moving unit is adapted to move said fluid jet in a unidirectional circular motion.

16. The system of claim 9, wherein said pad conditioner comprises a high pressure fluid supply and a nozzle being connected to said high pressure fluid supply to supply said fluid jet, and wherein said jet moving unit comprises a mobile mount, said nozzle being attached to said mobile mount.

17. The system of claim 16, wherein said jet moving unit further comprises a drive device being adapted to move said mobile mount.

5 18. The system of claim 1, further comprising a polishing head, said pad conditioner being attached to said polishing head.

19. The system of claim 1, further comprising a slurry supply being adapted to supply slurry to said polishing pad.

10 20. The system of claim 1, wherein said pad conditioner is adapted to direct a plurality of fluid jets towards said polishing pad, said plurality of fluid jets comprising said fluid jet.

15 21. The system of claim 20, further comprising:
a high pressure fluid supply; and
a plurality of nozzles being connected to said high pressure fluid supply to supply said plurality of fluid jets.

20 22. The system of claim 21, further comprising a mobile mount, said plurality of nozzles being attached to said mobile mount.

23. The system of claim 22, further comprising a drive device being adapted to move said mobile mount.

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24. The system of claim 20, further comprising a plurality of jet moving units, each of said jet moving units being adapted to move at least one of said plurality of fluid jets.

25. A method, comprising:

5 chemically mechanically polishing a substrate on a polishing pad; and
directing a high pressure fluid jet towards said polishing pad to condition a surface
portion of said polishing pad.

26. The method of claim 25, wherein said chemical mechanical polishing and said
10 directing said fluid jet towards said polishing pad are performed simultaneously.

27. The method of claim 25, wherein said chemical mechanical polishing and said
directing said fluid jet towards said polishing pad are performed successively.

15 28. The method of claim 25, wherein said fluid jet has a cross-section having one
of a substantially cylindrical shape, an oval shape, a substantial line shape and an arcuate line
shape.

29. The method of claim 25, wherein a first diameter of said fluid jet is smaller
20 than a second diameter of said fluid jet.

30. The method of claim 25, wherein said fluid jet comprises a liquid.

31. The method of claim 25, wherein said fluid jet comprises water.

32. The method of claim 25, wherein said fluid jet comprises a gas.

33. The method of claim 25, wherein said fluid jet comprises abrasive particles.

5 34. The method of claim 25, further comprising moving said fluid jet in an oscillating motion.

35. The method of claim 34, wherein said oscillating motion comprises a bi-directional circular motion.

10 36. The method of claim 34, wherein said oscillating motion comprises a bi-directional linear motion.

15 37. The method of claim 25, further comprising moving said fluid jet in a plane substantially parallel to a surface of said polishing pad.

38. The method of claim 37, wherein said fluid jet is substantially orthogonal to said plane.

20 39. The method of claim 25, further comprising moving said fluid jet in a unidirectional circular motion.

40. The method of claim 25, comprising directing a plurality of fluid jets towards said polishing pad, said plurality of fluid jets comprising said fluid jet.

41. The method of claim 40, further comprising moving said plurality of fluid jets.

42. The method of claim 25, further comprising supplying slurry to said polishing pad.

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43. The method of claim 25, further comprising moving said fluid jet and said polishing pad, said moving said fluid jet and said moving said polishing pad being coordinated.